

LOW POWER CMOS NE555V TIMER

A new low power timer designated ICM7555 is a direct pin-for-pin replacement for the NE555V bipolar timer, but requires only around a hundredth of the supply current required by the NE555V. The CMOS device has extremely low trigger, threshold and reset currents — typically 20pA; a very wide supply voltage range from 2V to 18V and the reset does not crowbar the supply during output transitions. The device can operate from microseconds up to about a day. The output can drive at least two standard TTL and CMOS and all inputs and outputs are fully protected against static discharge and no special handling is required at all.

Supply decoupling is normally not required close to the IC unlike the NE555V, nor is the control voltage decoupling capacitor usually required as it is with the NE555V, thus there is a saving in external components. To keep the total power supply requirements low, choose high values for R_A and R_B and low values for C which should be a low leakage type and not ceramic.

Specification:

Supply Voltage:

Minimum 2V, Maximum 18V

Supply Current: 80 μ A typical

Threshold Current:

10pA at $V^+ = 5V$, 50pA at $V^+ = 18V$

Max Frequency in Astable Mode:

At least 500kHz

Trigger Current:

10pA at $V^+ = 5V$, 50pA at $V^+ = 18V$

Reset Current:

20pA at $V^+ = 5V$, 100pA at $V^+ = 18V$

Reset Voltage: +0.7V

Temperature Stability: 50ppm/ $^{\circ}$ C at 25 $^{\circ}$ C

Output Sink Current:

100mA max at $V^+ = 18V$

In astable mode the frequency of operation is given by:

$$f = \frac{1.46}{(R_A + 2R_B)C} \text{ Hz}$$

Fig. 3 shows how to achieve duty cycles of 50% and less.

PRICES HELD UNTIL NOVEMBER

With prices shooting up it will be good news to know that we are pegging our prices come what may (VAT changes excluded) until November 1979. Our newsletter will be available in mid-November — those on our mailing list will of course still receive six copies for their 30p. After November we shall be publishing every three months and our prices will be held for three month periods.

Special Offers

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New Books

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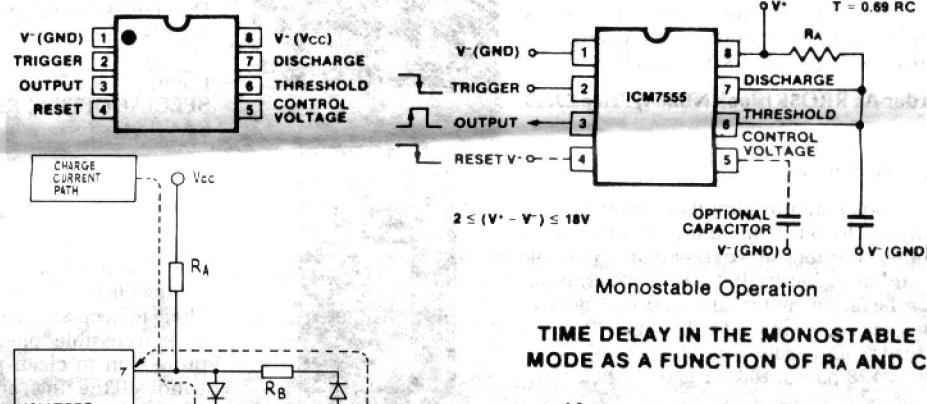
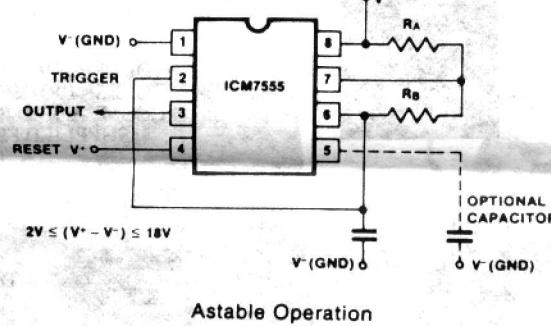


FIG. 3



Astable Operation

In a monostable mode the period time is given by:

$$t = 0.69RC \text{ Hz}$$

(In both equations R is in ohms and C is in Farads)

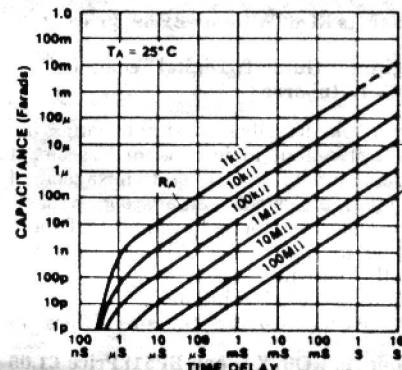
Order As YH63T (ICM7555)

Price £1.09

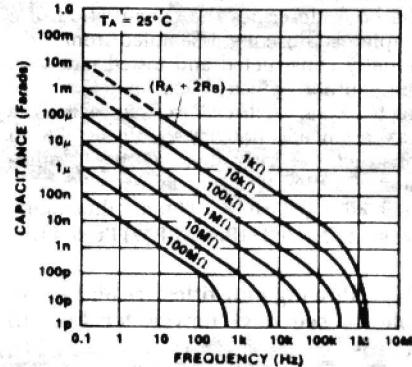
CAPACITOR MARKINGS

Some of the capacitors we supply are marked using three digits and a letter. The three digits denote the value and the letter denotes the tolerance. The first two digits are the first two digits of the actual value and the third digit indicates the number of zeros that follow the value, and the value is in picoFarads. For example a capacitor marked 102 has a value of 10 plus two zeros, which is 1000pF. (1000pF = 0.001 μ F). The letter indicates the tolerance as follows: F = \pm 1%, G = \pm 2%, H = \pm 2 1/2%, J = \pm 5%, K = \pm 10%, M = \pm 20%.

TIME DELAY IN THE MONOSTABLE MODE AS A FUNCTION OF RA AND C



FREE RUNNING FREQUENCY AS A FUNCTION OF RA, RB AND C



THE SHOW OF THE YEAR

All of our projects will be on demonstration on our huge stand at the electronics hobby show of the year: *Breadboard 1979*. This year the show is at the Royal Horticultural Hall, near St. James' Park Underground Station, right in the middle of London. The dates to remember are Tuesday, 4th December to Saturday 8th December. We all hope you'll make a special effort to be there and we promise you won't regret it — it's going to be a tremendous show. For further details see our adverts and our November newsletter.

AMENDMENTS TO LEAFLETS

Drumsette

On schedule please amend numbers required of DIL Sockets 14 and 16-pin. You will require 5 DIL Socket 14-pin and 6 DIL Socket 16-pin.

Train Controller

In the parts list and in the component schedule (MES46B) we have shown C2 as Axial 100 μ F 25V. It should be Axial 1000 μ F 25V. Also the transformer should be WB25C (Tr 12V 1A) and not Tr 34V 1A as stated in the parts list and component schedule. A revised wiring drawing is being sent out with the Train Control PCB (BY75S).

8W Amp Kit PCB

The 8W Amp PCB (BY73Q) has component designations printed on it. Please note that C3 should be inserted in the position marked C5 and vice versa, and R2 should be inserted in the position marked R3 and vice versa.

On boards marked BY73Q/2 these errors have been corrected.

40W Stereo Amplifier

The following parts used in this project are not shown in the catalogue.

XX30H (Equaliser Pot Core) Price £1.76

XX31J (PCB Guides) Price 1 Price 19p

XX32K (Headphone Skt Bkt) Price 52½p

XY21X (Hi-Fi Amp Chassis) Price £16.93

XY22Y (Hi-Fi Amp Screen) Price £1.37

XY23A (Hi-Fi Amp Front Panel) Price £5.86

XY24B (Hi-Fi Amp Cover Black) Price £4.69

FL94C (Hi-Fi Amp Sel. Mthr. PCB) Price £2.82

FL95D (Hi-Fi Amp Selector PCB) Price £2.29

FL96E (Hi-Fi Amp Equ. Mthr. PCB) Price £2.25

FL97F (Hi-Fi Amp Equaliser PCB) Price £1.82

FL98G (Hi-Fi Amp Pk. Det. PCB) Price 90½p

FL99H (Hi-Fi Amp PSU PCB) Price Price £1.65

Touch-Sensitive Electronic Piano

The following amendments that should have been made to MES22 and MES22B prior to publication were regrettably omitted.

Top Octave Board

R7 should be Min Res 6k8

Two Octave Boards

R7 should be Min Res 6k8

Power Supply and Voice PCB

R16 should be Min Res 47k

R31 should be Min Res 1k

R41 should be Min Res 100k

R30 should be Min Res 47Ω

C1 should be Polyester 0.047μF

C2 should be Ceramic 2700pF (ignore '+' on circuit board)

C21 should be Polyester 0.047μF

Q1, 2 and 3 should be BC109C

In the pedals do not connect the two moving contacts together. Instead, connect each screen to its appropriate moving contact separately. Also insert an additional resistor R44, a Min Res 10k between the fixed contact on the sustain pedal (right-hand pedal) and the centre conductor of the screened cable (the wire connected to pin 8 on the PCB).

In Fig. 5, C4 is not required and the outputs from all the octave boards should be simply commoned and connected directly to the input of the Voice Board (pin 11). In Fig. 1, R41 is connected at its top end to R40, R42, C28 and the sustain line only. This point is not connected to the -13V rail as shown. It is connected correctly on the PCB.

It should be noted that the level pots on the octave boards should be set as low as possible for best results. The max output is then about 250mV rms, which should be adequate for most amplifiers.

On the PCB the + of C18 is marked at the wrong end. It should be connected the same way round as C19.

On the PCB the + of C11 is marked at the wrong end. It should be connected the same way round as C9. Also C16 is not marked. It fits in the holes beside R8 with its + lead connected to the pad closest to the edge of the board.

Fig 11 is incorrect; it is shown correctly above.

Bass Guitar And Organ Pedal Unit

In the component list on leaflet MES 25 the following items have been omitted:

T2 Sub-Min Tr 6V

D45-46 1N4002

D47-53 LED Red

R151-157 Min Res 270Ω

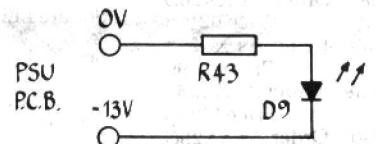


FIG.11.

In addition C55 should be Axial 470 μ F 63V (not 40V).

ZD1 should be BZX6C12 (not 13).

LP1 Pan/Neon is not required.

FS1 should be mounted in a Chassis F/H 20mm.

The six Press Toe Switches Type 1 are SW2 to 7.

The Component Schedule (MES25B) lists all these parts correctly.

150W Amp Kit

We recommend making Q1, 2 and 3 either all ZTX541 or all ZTX542, changing Q5 to BF337 and R11 to Std Res 1k. Only two Heatsinks Clip-On will now be required. LW32K is now being supplied as standard with the parts listed above.

150W Stereo Disco

The following parts used in this project are not shown in this catalogue.

XY26D (Heatsink Mtg Plate) Price £2.65

XY27E (Heatsink Cover) Price £4.75

Letters to the Editor

Harmony Vocaliser Kit

Dear Ed.

Your latest catalogue is really good value for money. It has become my main reference book.

Can you help me with these question?

1. How practical would a "Harmony Vocaliser" KIT be? (and could Maplin produce it?)

2. What do V_{DD} and V_{SS} stand for?

3. Where can I find a substitution list for semiconductors commonly used in the American project books published by Foulsham-Tab?

4. Does a wire wound resistor have inductive reactance?

(Experienced constructors can go "Tut-Tut" here and pass on to the next letter.)

Thanks for a good service.

Yours sincerely,

A. Gaffney

Scotland.

More Data — Less Colour

Dear Sir,

May I congratulate you on your new catalogue, with its vast range of widely divergent components. It must surely be invaluable to any electronics enthusiast!

However, I must confess to having reservations about your additional colour pages. While I suppose they are good advertisements for larger projects, I do think the space could have been used to better purpose.

In particular, I would prefer to see more information, formulae, etc. given about your extensive range of IC's for instance. I notice that data concerning the NE555V has been cut to a bare minimum, compared to that in the previous catalogue which I had found extremely useful. I am of the opinion that hard facts are rather more useful than colourfull pictures.

With regard to new lines, I have found a better way of keeping my catalogue up to date. This I do by cutting out the relevant sections from your new-style (and much easier to handle!) newsletters and glueing the appropriate page.

Thanks, then, to all at Maplin for your excellent service. Although it has suffered from an inevitable surge of orders, I am sure it will soon be restored to its usual superlative swiftness.

Yours faithfully,
T. J. Barker
Reigate, Surrey

We are already working on our 1981/82 catalogue and we are hoping very much that we shall be able to keep our colour pages and include a lot more information on our IC's.

Synthesiser For Sale

I have available for sale a fully tested and working 4600 Synthesiser. All enquiries please ring 0702 712966 after 6 p.m.

Name and address supplied.

ADJUSTABLE ANGLE LAMPS

A high quality adjustable table lamp to get a bright light into all those awkward corners when you're using miniature components. The 7 inch diameter shade provides a wide area of illumination and takes a standard light bulb (not supplied) up to 60W. The tempered steel spring balanced arms move with a parallelogram motion and tension control knobs at the arm joints adjust and maintain the set position of the lamp. The shade is fully adjustable and the whole unit is finished in Californian White. The interior of the shade is coated with a special heat resistant enamel designed to ensure maximum reflection.

The lamp is supplied with a bracket which allows clamp fixing to a table edge or headboard or screw fixing to a bench or wall. A switch is provided on top of the shade and there is 2 metres of flex for direct connection to the mains.

Order As XY25C (Stay-Put Lamp)

Price £10.90



Audio Mixer

The Terry clip spacer previously sold only as part of mixer metalwork kit No. 1 is now available separately.

Order As LW03D (Spacer TC) Price 16p

Car Ignition

In the new leaflet the circuit has been changed and therefore the PCB (BB75S) described on page 24 of the catalogue will not be suitable. Leaflet MES16 will give full details.

Burglar Alarm

In the parts list for the ultrasonic detector and in the component schedule (MES47B) we have shown C9 as Axial 10 μ F 25V. It should be Ceramic 10pF. Also R16 is shown as Min Res 1k. It should be Min Res 2k2. The Octal Ch Skt shown on the schedule is not required.

Also R41 and R43 should be Min Res 1k8.

Letters to the Editor

"And The Eyes Of Them Both Were Opened, And They Knew That They Were Naked". Gen.3:7

Dear Sir,

Whilst looking through your catalogue, I noticed an item which seemed to fall short of the high standard which I have come to expect from Maplin. This is the Picture Liquid cassette wheel entitled "Lovers". I find this to be very offensive, in the first place because it portrays an act which I feel should remain essentially private, certainly not to be displayed in such a public place as a disco. Secondly because of its possible destructive effect on the youngsters who attend discos, many of whom are only around the ages of 12 or 13. I feel that it is very important to avoid pressures of this kind on mere children. Certainly the visual impact of the picture could lead them to suppose that this sexual behaviour would be acceptable, regardless of age or feelings, and it presents an image which is totally devoid of any moral value. To a lesser extent, this argument also applies to the "Go-Go Dancers" wheel.

Ideally, we would like to suggest that you withdraw these items from sale, but failing that, perhaps you would publish this letter and invite comment from other customers.

Yours sincerely,
Clive & Ingrid Wagner
Coventry.

The cassette wheels in question meet a high technical standard and are for

from being pornographic and therefore we feel they are perfectly acceptable to offer for sale. Dancing is a sensual form of enjoyment and discos, because of this, are highly sensual places, where pictures of this kind are not out of place. Children have to grow up in a world which by and large accepts the basic sexual nature of mankind. In my opinion it is up to the teachers and parents to show children the moral values and put these matters in perspective, then censorship of the kind you have put forward would not need to be considered.

Very Upset Customer

Dear Sir,

I would have liked to have written to you praising your service, but unfortunately, I think you are the strangest firm I have had the misfortune to deal with. Let me explain.

In either October or November Everyday Electronics, you included a prepaid invitation to purchase a catalogue, this I completed and returned. I received this excellent publication in mid February. I placed an order on 18th February for nearly £13 of equipment — OK, not an enormous order, but all helps to build a foundation. Two items on my order were your special offers SP25C and SP17T. Perhaps you will find it hard to believe that I am still awaiting the NE 555 timers.

Quite frankly I feel very badly let down, and the Maplin Promise is absolute rubbish and a downright rip off.

All I can say is that on the 18th May, 3 months after placing my order, if I have not received the balance of my order, I shall return **post unpaid** the whole of the order and I shall demand my money be returned. I will also make my case known as widely as possible, i.e. to write to the publications which carry your advertisements. I think this action fair to protect other unsuspecting people.

Just pull your fingers out.

J. N. Shelley

Kendal, Cumbria

P.S. Don't expect any further business from me.

The NE555 timers were promised to us by one of the biggest manufacturers of semiconductors in the world, for delivery in mid-January. Up until the end of April, they were still saying that delivery would be any day, then finally admitted the truth and said that to be honest, they couldn't be sure when we'd get them, but they said, "You are first in line for them on one of our lists" — it seems that government contracts get priority — if you see what we mean. We eventually managed to find an alternative supplier and cleared all our back orders at the end of May. It is now July, and we have still not received the timers promised for mid-January.

Complainers Make Me Sick

Dear Sir,

I have not been with you as a customer for long, although I did have my eye on your adverts for a long time, but never got round to ordering from you, due to having bought OTHER suppliers catalogues and being very put off by prices, or small order charges, etc., so when you offered your latest catalogue on approval in one or more of the mags that I buy every month, I took the gamble to try you, due to my being able to return the Catalogue if I was dissatisfied. I still have the catalogue, and although you often don't have every component I require, and your stocks have taken a 'POUNDING' from 'OLD' and 'NEW' customers alike, I have up to yet, no complaints, your prices are VERY competitive, your return service is very good, considering your estimated consumerage, and it makes me feel sick, when I read some of the letters of complaint, some people do not know how to be thankful, they have always got to complain about something, or they are not happy, so I hereby say, to ALL complainers, I'M SATISFIED, YOU MAY BE ALSO, IF YOU THINK ABOUT IT, GIVE MAPLIN A CHANCE TO GET THEIR SUPPLIES AND SUPPLIERS RIGHT THOUGH AND NOBODY WILL TOUCH THEM.

Now, about that 'T-shirt' slogan, as asked for in the May 1979 Maplin News.

BACK ISSUES OF NEWSLETTERS

Copies of all previous issues of our newsletter since our current catalogue was issued are available. The reprints do not include the price list or letters pages or any item repeated in a later issue.

The list below gives details of articles included, along with current prices of any new items shown in that newsletter.

January 1979 Order As XF33L (Newsletter MES121) Price 15p

This newsletter carries details of the following:

Power Supply for one or two 8W Amp Kits
Constant Current charger circuit for use with our quick charge nickel-cadmium cells.
Keyboard Console — a black plastic case with slightly sloping aluminium front panel. Overall size 405 x 210 x 57/30mm.
Order As XY15R (Verobox 503) Price £9.53
NE 544 Servo Motor Driver application circuit.

MM57160 Timer circuits and programming details.

Stereo Mixer — schedule filled out to your requirements free.

New Books as follows:

Radio Stations Guide
by B. B. Babani & M. Jay
Order As RQ58N (Book BP55) Price £1.55
The Best Of Creative Computing Vol. 1
Order As RQ60Q (Book Sybex R1)

Price £7.70

The Best Of Creative Computing Vol. 2
Order As RQ61R (Book Sybex R2)

Price £7.70

The Best Of Byte
Order As RQ62S (Book Sybex R3)

Price £9.83

Questions And Answers Radio Repairs
by Les Lawry-Johns
Order As RQ59P (Book NB367) Price £1.60

Artist And Computer
Order As RQ63T (Book Sybex R5)

Price £4.69

Some Common BASIC Programmes
Order As RQ64U (Book Sybex P10)

Price £6.99

March 1979 Order As XF34M (Newsletter MES122) Price 15p

This newsletter carries details of the following:

Dual-In-Line-Switches

DIL Switch SPST Dual	Order As XX26D
	Price 62½p
DIL Switch SPST Octal	Order As XX27E
	Price £1.90
DIL Switch SPDT Single	Order As XX28F
	Price 62½p
DIL Switch SPDT Quad	Order As XX29G
	Price £1.90

0.1in Matrix Breadboard

Breadboard 217L	Order As XX18U
	Price £3.31

Breadboard 234L	Order As XX19V
	Price £5.92

Breadboard 248L	Order As XX20W
	Price £6.93

Breadboard 264L	Order As XX21X
	Price £8.72

Breadboard 206R	Order As XX22Y
	Price £1.39

Breadboard 209R	Order As XX23A
	Price £1.56

Breadboard 212R	Order As XX24B
	Price £1.75

Breadboard SS-2	Order As XX25C
	Price £11.59

7109 A/D Converter	Order As YH59P
	Price £14.70

CA3080E Transconductance Op-amp	Order As YH58N
	Price 88½p

Flexible Laminate Panels

Laminate Japan Teak	Order As XY17T
	Price £3.71

Laminate Penang Walnut	Order As XY18U
	Price £3.71

Laminate Alumin. Sml.	Order As XY19V
	Price £1.59

Laminate Alumin. Lrg.	Order As XY20W
	Price £2.11

Modification to 100W Stereo Disco to stop power amps exceeding 100W and overheating.

May 1979 Order As XF35Q (Newsletter MES123) Price 15p

This newsletter carries details of the following:

Teak Cabinet for Piano Project Order As XY11M

Price £61.23

Remote Control Dimmer Order As XX35Q

Price £22.21

Dimmer Control Box Order As XX36P

Price £9.05

Square LED Green Order As YH60Q

Price 51p

Square LED Yellow Order As YH61R

Price 51p

Square LED Clip Order As YH62S

Price 6½p

Automatic Car Cassette Carrier Order As LY06G

Price £3.48

Universal Headshell Order As XX34M

Price £3.66

PP3 Battery Holder Order As XX33L

Price 75p

Verobox 303 Order As LH50E

Price 88½p

Verobox 305 Order As LH51F

Price £1.66

New Books as follows:

Basic Basic by James S. Coan

Order As RL45Y (Book HD106) Price £5.90

Designing A Microprocessor System (cassette course) by Rodney Zaks

Order As RQ65V (Course S3) Price £22.30

Projects In Radio And Electronics by I. R. Sinclair

Order As RL36P (Book NB345) Price £2.64

Electronic Projects In Audio by R. A. Penfold

Order As RL40T (Book NB338) Price £2.45

Electronic Projects In Hobbies by F. G. Rayer

Order As RL41U (Book NB354) Price £2.45

Electronic Security Devices by R. A. Penfold

Order As RL43W (Book BP56) Price £1.55

Z80 Instruction Handbook by Nat Wadsworth

Order As RL39N (Book Sybex L8)

Price £3.50

Game Playing With Basic by D. D. Spencer

Order As RL47B (Book HD109) Price £4.60

Electronic Projects In The Home by Owen Bishop

Order As RL42V (Book NB346) Price £2.45

50 Circuits Using 7400 Series IC's by R. N. Soar

Order As RL44X (Book BP58) Price £1.45

How To Build A Computer-Controlled Robot by T. Loofburrow

Order As RL46A (Book HD681) Price £5.25

The Mind Appliance: Home Computer Applications by T. G. Lewis

Order As RL48C (Book HD112) Price £4.55

CBer's Wordbook

Order As RL49D (Book HD765) Price £2.50

8080 Galaxy Game by R. Edwards

Order As RL37S (Book Sybex L9) Price £5.40

Letters to the Editor

Not too cheeky, but I suppose if your mind works on it at any length, it could be taken that way, mine did... so how about this?

"MAPLIN ELECTRONIC SUPPLIES — FOR A BIT AT THE RIGHT PRICE". And don't let the 'print' wash out.

Sincerely yours with best wishes,
B. Phillips
Wolverhampton

It was very kind of you to write to us and we do try very hard to live up to your expectations. Sadly, there is no doubt that some customers have had bad service from us and their complaints are justified. There certainly has never been any deliberate bad service or bad service through lack of trying or caring, but bad service is bad service whatever the cause and those who receive it have a right to have their voices heard. Nevertheless it's nice to know that there are people who understand our problems.

Nice Prices, Shame About The Binding

Dear Sir,
I would like to congratulate you on your speedy delivery of components. The only complaint I can find, is the flimsy paper you use in your catalogue, the middle and back pages fell out of mine on arrival. Apart from this complaint, I think your service is very good. When I compared the price of components from the local electronic shop

with your prices, I had a shock. I was expecting their prices to be cheaper because I wouldn't have to pay postage, but I was wrong, their prices were about 1½ times more expensive than yours. Finally, I have thought of a phrase for your teeshirt:

"I'm a live wire, my equipment comes from Maplin."

Yours faithfully,
D. Bolt
Poole, Dorset

Unfortunately, the price of paper is rocketing upwards and finding the right paper for our catalogue is a major consideration. We would have liked to print it on a better quality paper, but would all our regular customers have paid the extra?

Strange Fault On Synth

Dear Sir,
I am mystified by an intermittent fault on two oscillators from the 4600 synth. It sometimes appears when power is applied after a period of rest, sometimes after the range or waveform selector switch is rotated and occasionally during playing. This fault condition causes the voltage/frequency relationship to become non-linear and it remains after power is removed then re-applied, but can be cleared by momentarily earthing C4 at the range selector end.

It doesn't look like a dry joint, I've changed IC3, 4 and 6, spent many hours with a scope and meter, so am keen to hear from anyone with similar troubles.

Phone: Medway 45500.

S. Marks
29 Weston Road,
Rochester,
Kent.

Yours faithfully
S. Marks

P.S. I have no objections to phone and address being printed.

We must admit to being mystified by this fault also, but it seems likely it lies around IC5 and IC6.

How To Get Brian May's Guitar Sound

Dear Sir,
in your March newsletter, S. P. Lewis asked if you could design a fuzz box for a guitar which would make his guitar sound like Brian May, etc. I have found that the nearest thing to this sound is achieved using a compressor and then using an ordinary fuzz box. The compressor keeps the volume level constant, and increases the sustain, whilst the fuzz box adds that extra "crunch" to the sound as you play. If, like me, you are unable to afford a ready-built compressor, a suitable circuit and details on how to build it are included in Craig Anderton's book

"Electronic Projects For Musicians", which uses a dual op-amp (14-pin D.I.L. 4739) and an optoisolator, as well as a minimal number of discrete components. Thanks for the excellent service.

Yours

Stephen F. Archbold
Whitley Bay, Tyne & Wear

Excellent Service Marred

Dear Sir,
I am new to using your mail order service, and was beginning to think it was excellent. This thought, however, has been marred by the mis-handling of my last order, including 1 vero-box. Due to a mis-read order code (LLO5F read for LQ05F) I was sent the wrong box. This was duly returned and cost 44p in postage. The catalogue instructions seem very vague in connection with returned goods and it is rather disappointing not to receive a note of apology or a refund of postage when the correct order was returned.

Yours sincerely,
D. Johnson
Pudsey, W. Yorks.

We have suffered from a spate of mis-read codes recently and have now changed our collecting system slightly to try to overcome the problem. We are sorry that Mr. Johnson did not receive a refund of his postage, he should have done so and we have now sent him a refund.

All prices shown in this list are valid

PRICE LIST from July 23rd 1979 to November 9th 1979

Prices shown in this list include VAT at 15% where applicable. Items marked NV are rated at 0% and the price shown applies both to inland and export orders. Overseas customers should add up the total cost of all items except those marked NV and deduct 13% to arrive at the total price excluding VAT. Alternatively multiplying the total price (except NV items) by 0.87 will give the total price excluding VAT.

Although postage charges to customers living in the Republic of Ireland and in the UK, but not on the UK mainland, are the same as to mainland addresses we regret that we must levy an additional charge of £5 on each order containing any items marked "Delivery by Carrier".

Will customers from the Republic of Ireland please add 25p and then 10% to the cost of their order now that the Irish pound is not equivalent to sterling, to cover the rate difference and negotiation fees. We will refund any difference; please state cheque or credit note.

All prices are for the unit quantity shown in the catalogue (unless shown otherwise on this list) i.e. each, per pack, per metre etc. All prices include postage and packing. There is a 20p handling charge which must be paid on all orders having a total value of under £2.00.

The price list is intended for use with our 1979/80 catalogue and applies to all mail orders. Prices in our shop are generally lower on heavy items as mail order prices include postage and packing costs. Our valuable discount voucher scheme continues both on mail orders and in our shop.

Copies of manufacturers' data sheets are available for most IC's — price 25p each.

Notes:

† While stocks last NYA Not yet available

★ Item is mentioned in "Errors In 1979/80 Catalogue" elsewhere in this newsletter.

NV Indicates that item is zero rated for VAT purposes.

Prices charged will be those ruling on the day of despatch.

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BR45Y AS 341s 33p

BR88V Mk/Space Adptr Kit £3.45

BB00A Divider Board 'A' £2.38

BB10B Divider Board 'B' £2.30

BB02C Tone Board 'A' £2.39

BB03D Tone Board 'B' £1.84

BB07H Control Board 'A' £3.35

BB08J Control Board 'B' £1.52

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BB89W Latch PCB NYA

BB89X Character Gen PCB NYA

BB89Y Graphics Gen PCB NYA

BB90B Output Timing PCB NYA

BB93B Address Switching PCB NYA

BB94C VDU Interface PCB NYA

BB95D Cassette/Modem PCB NYA

BB96E 3-Page Extn Mem PCB NYA

BB97F 4-Page Control PCB NYA

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